

WHAT IS CLAIMED

Sub A3

1. A method of selectively enabling each of a plurality of respectively different circuits of a multi-function circuit arrangement to perform its respective signaling function, each respectively different circuit  
5 requiring use of the same type of external circuit component to implement its respective signaling function, said method comprising the steps of:

(a) providing a single external circuit component that corresponds to said same type of external circuit  
10 component; and

(b) in association with performance of each respectively different circuit function of said multi-function circuit arrangement,

(b1) enabling that one of said plurality of  
15 respectively different circuits which performs said each circuit function, while selectively disabling one or more others of said plurality of respectively different circuits which do not perform said each circuit function, and

(b2) coupling said single external circuit  
20 component to said one of said plurality of respectively different circuits, while decoupling said single external circuit component from said one or more others of said plurality of respectively different circuits.

2. A method according to claim 1, wherein step (b2) comprises coupling said single external circuit component to said one of said plurality of respectively different circuits through a selectively controlled switching circuit having a plurality ports respectively coupled to said plurality of respectively different circuits, and a component-coupling port coupled to said single external circuit component.

3. A method according to claim 1, wherein step (b1) comprises controllably enabling that one of said plurality of respectively different circuits which performs said each circuit function by means of a differentially coupled transistor circuit.

4. A method according to claim 1, wherein said multi-function circuit arrangement comprises a telecommunication circuit card and said plurality of respectively different circuits include two or more of a polarity reversal detection circuit, a ring-trip circuit, and a line voltage measurement circuit, and wherein said same type of external circuit component comprises a capacitor.

5. A method according to claim 4, wherein, during

operation of each of said ring-trip circuit and said line voltage measurement circuit,

step (b1) comprises enabling said polarity reversal detection circuit, so that tip and ring terminals of said telecommunication circuit will be supplied with a required polarity voltage, and

step (b2) comprises decoupling said single external circuit component from said polarity reversal detection circuit.

6. A method according to claim 4, wherein step (b1) includes continuously enabling said polarity reversal detection circuit irrespective of whether said polarity reversal detection circuit is to be coupled with said capacitor in step (b2), but selectively enabling only that one of said ring-trip circuit and said line voltage measurement circuit that is to be coupled with said capacitor in step (b2).

7. A method according to claim 2, wherein said multi-function circuit arrangement comprises a telecommunication circuit card and said plurality of respectively different circuits include two or more of a polarity reversal detection circuit, a ring-trip circuit, and a line voltage measurement circuit, said same type of external circuit component comprises a capacitor, and

wherein said polarity reversal detection circuit is coupled to a first one of said plurality of ports of said controlled switching circuit, and said ring-trip circuit and said line voltage measurement circuit are coupled to respective and second and third ones of said plurality of ports of said controlled switching circuit, that are intermediate said first one of said plurality of ports and said component-coupling port.

8. An apparatus for selectively enabling each of a plurality of respectively different circuits of a multi-function circuit device to perform its respective signaling function, each respectively different circuit requiring use of the same type of external circuit component to implement its respective signaling function, comprising:

a single connection terminal adapted to coupled to a single external circuit component that corresponds to said same type of external circuit component; and

a circuit interconnection arrangement which is operative, in association with performance of each respectively different circuit function of said multi-function circuit device, to enable that one of said plurality of respectively different circuits which performs said each circuit function, and to selectively disable one or more others of said plurality of

respectively different circuits which do not perform said  
each circuit function, and to couple said single external  
20 circuit component to said one of said plurality of  
respectively different circuits, while decoupling said  
single external circuit component from said one or more  
others of said plurality of respectively different  
circuits.

9. An apparatus according to claim 8, wherein said circuit interconnection arrangement includes a selectively controlled switching circuit having a plurality ports respectively coupled to said plurality of  
5 respectively different circuits, and a component-coupling port coupled to said single external circuit component, and which is operative to couple said single external circuit component to said one of said plurality of respectively different circuits.

10. An apparatus according to claim 8, wherein said circuit interconnection arrangement includes a plurality of differentially coupled transistor circuits, which are coupled to said plurality of respectively different circuits that perform said respectively different circuit functions, and which are operative to selectively enable or disable said respectively different circuits.

11. An apparatus according to claim 8, wherein said multi-function circuit arrangement comprises a telecommunication circuit card and said plurality of respectively different circuits include two or more of a polarity reversal detection circuit, a ring-trip circuit, and a line voltage measurement circuit, and wherein said same type of external circuit component comprises a capacitor.

12. An apparatus according to claim 11, wherein, during activation of each of said ring-trip circuit and said line voltage measurement circuit, said circuit interconnection arrangement is operative to enable said polarity reversal detection circuit, so that tip and ring terminals of said telecommunication circuit will be supplied with a required polarity voltage, and to decouple said single external circuit component from said polarity reversal detection circuit.

13. An apparatus according to claim 10, wherein said circuit interconnection arrangement is operative to continuously enable said polarity reversal detection circuit irrespective of whether said polarity reversal detection circuit is to be coupled with said capacitor, and to selectively enable only that one of said ring-trip

circuit and said line voltage measurement circuit that is to be coupled with said capacitor.

14. An apparatus according to claim 9, wherein said multi-function circuit device comprises a telecommunication circuit card and said plurality of respectively different circuits include two or more of a polarity reversal detection circuit, a ring-trip circuit, and a line voltage measurement circuit, said same type of external circuit component comprises a capacitor, and wherein said polarity reversal detection circuit is coupled to a first one of said plurality of ports of said controlled switching circuit, and said ring-trip circuit and said line voltage measurement circuit are coupled to respective and second and third ones of said plurality of ports of said controlled switching circuit, that are intermediate said first one of said plurality of ports and said component-coupling port.

15. A method of selectively enabling each of a plurality of respectively different circuits of a multi-function circuit card to perform its respective signaling function, said plurality of respectively different circuits including a polarity reversal detection circuit, a ring-trip circuit, and a line voltage measurement circuit, and wherein each respectively different circuit







~~said~~ capacitor in step (b2).

20. A method according to claim 16, wherein said polarity reversal detection circuit is coupled to a first one of said plurality of ports of said controlled switching circuit, and said ring-trip circuit and said line voltage measurement circuit are coupled to respective and second and third ones of said plurality of ports of said controlled switching circuit, that are intermediate said first one of said plurality of ports and said component-coupling port.